Chapter 5
Glossary

Acronyms

ae: Acid equivalent

ai: Active ingredient

BAER: Burned Area Emergency Response

BE: Biological evaluation

BE/BA: Biological evaluation/ biological assessment

BEE: Butoxyethyl ester

BMP: Best management practice

BW: Bodyweight

BCF: Bioconcentration factor

CWHR: California Wildlife Habitat Relationship

CEQ: Council on Environmental Quality

CFR: Code of Federal Regulations

cfs: Cubic feet per second

CWE: Cumulative watershed effects

DBH: Diameter at breast height

DEIS: Draft environmental impact statement

DPR: (California) Department of Pesticide Regulation

EC_{50}: Environmental concentration for 50% of a population

EEC: Estimated Environmantal concentration

EIS: Environmental impact statement

EID: El Dorado Irrigation District

ENF: Eldorado National Forest

EPA: Environmental Protection Agency

EPCRA: Emergency Planning and Community Right-to-Know Act

ERA: Equivalent roaded acres

FACTS: Forest Service activity tracking system

FEIS: Final environmental impact statement

FSEIS: Final supplemental environmental impact statement

FRCC: Fire regime condition class

FDA: Food and Drug Administration

FS: Forest Service

FSH: Forest Service handbook

ft: feet

FVS: Forest vegetation simulator

GIS: Geographic information system

GLEAMS:Groundwater Loading Effects of Agricultural Management Systems

HQ: Hazard quotient

HFQLG: Herger-Feinstein Quincy Library Group

HRCA: Home range core area

IPM: Integrated Pest Management

kg: kilogram

LC_{50}: Lethal concentration for 50% of population

LD_{50}: Lethal dose for 50% of population

LOP: Limited operating period

MCL: Maximum contaminant level

mg: milligram

mg/kg: milligrams per kilogram

mg/kg/lb: milligrams per kilogram per pound

mg/L: Milligrams per liter

MIS: Management indicator species

MRL: Minimal risk level

MSO: Methylated seed oil

ng: nanogram

NEPA: National Environmental Policy Act

NHPA: National Historic Preservation Act

NF: National forest

NFS: National Forest System

NTU: Nephelometric Turbidity Units

NP: Nonylphenol

NOEC: No observed effects concentration

NOAEL: No observed adverse effects level

NOEL: No observed effects level

NOI: Notice of intent

NPE: nonylphenol polyethoxylate

pH: Acidity

PAC: Protected activity center

POEA: ethoxylated tallow amine surfactant

ppb: Parts per billion

ppm: Parts per million

PGE: Pacific Gas and Electric

RfD: Reference dose

RCA: Riparian conservation area

RCO: Riparian conservation objectives

ROD: Record of decision

TOC: Threshold of concern

ug: microgram

SERA: Syracuse Environmental Research Associates

SMUD: Sacramento Municipal Utilities District

SNFPA: Sierra Nevada Forest Plan Amendment

SPI: Sierra Pacific Industries

SPLAT: Strategically placed landscape area treatment

SOPA: Schedule of Proposed Actions

TCP: 3,5,6-trichloro-2-pyridinol

TES: Threatened and endangered species

TMRC: Theoretical maximum residue concentration

TPA: Trees per acre

USDA: United State Department of Agriculture

USFWS: United States Fish and Wildlife Service

WUI: Wildland urban intermix

WCR: Water contamination rate

Terms

The glossary provides definitions of technical terms and acronyms used in the Freds Fire Reforestation Draft EIS.

Absorption: The process by which the agent is able to pass through the body membranes and enter the bloodstream. The main routes by which toxic agents are absorbed are the gastrointestinal tract, lungs, and skin.

Acid equivalent (a.e.): The acid equivalent of a salt or ester form of the active ingredient of an herbicide is that portion of the molecule that represents the parent acid form of the molecule.

Active ingredient (a.i.): The main ingredient produces the desired effect.

Acute exposure: A single exposure or multiple exposures occurring within a short time (24 hours or less).

Additive effect: A situation in which the combined effects of two chemicals is equal to the sum of the effect of each chemical given alone. The effect most commonly observed when two chemicals are given together is an additive effect.

Adjuvant(s): Formulation factors used to enhance the pharmacological or toxic agent effect of the active ingredient.

Adsorption: The tendency of one chemical to adhere to another material.

Adverse-effect level (AEL): Signs of toxicity that must be detected by invasive methods, external monitoring devices, or prolonged systematic observations. Symptoms that are not accompanied by grossly observable signs of toxicity. In contrast to Frank-effect level.

Assay: A kind of test (noun); to test (verb).

Affected Environment: The physical, biological, social, and economic environment where human activity is proposed.

Age class: One of the intervals, usually 10 to 20 years, into which the age range of vegetation is divided for classification or use.

Alternative: In forest planning, a given combination of resource uses and mix of management practices that achieve a desired management direction, goal, or emphasis.

Annual: A plant species completing its lifespan within one year.

Aquatic ecosystems: The stream channel, lake, or estuary bed, water, biotic communities, and habitat features that occur therein.

Assay: A kind of test (noun); to test (verb).

BehavePlus3: A fire modeling program that describes fire behavior, fire effects, and the fire environment. Its applications for fuel hazard assessment includes modeling the effect of a change in surface and crown fuels on calculated fire behavior under various fuel moisture and wind

Cancer potency parameter: A model-dependent measure of cancer potency $(mg/kg/day)^{-1}$ over lifetime exposure. [Often expressed as $a_{q1}{}^{*}$ which is the upper 95% confidence limit of the first dose coefficient ($_{q1}$) from the multistage model.]

Canopy closure: is the proportion of the sky hemisphere obscured by vegetation when viewed by a single point. Closure is affected by tree heights and canopy widths and takes into account light interception and other factors that influence microhabitat

Carbon sequestration: The process through which plant life removes carbon dioxide from the atmosphere and stores it in biomass. Over the course of a year, plants remove and release carbon dioxide. Nnet sequestration results if the rate of removal is higher than the rate of release.

Carcinogen: A chemical capable of inducing cancer.

Carrier: In commercial formulations of insecticides or control agents, a substance added to the formulation to make it easier to handle or apply.

Chronic exposure: Long-term exposure studies often used to determine the carcinogenic potential of chemicals. These studies are usually performed in rats, mice, or dogs and extend over the average lifetime of the species (for a rat, exposure is 2 years).

Conifer: An order of the Gymnospermae, comprising a wide range of trees, mostly evergreens that bear cones and have needle-shaped or scalelike leaves; timber commercially identified as softwood.

Contaminants: For chemicals, impurities present in a commercial grade chemical. For biological agents, other agents that may be present in a commercial product.

Creatine: An organic acid composed of nitrogen. It supplies the energy required for muscle contraction.

Creatinine: The end product of the metabolism of creatine. It is found in muscle and blood and is excreted in the urine.

Cumulative Watershed Effects (CWE) All effects on the beneficial uses of water that occur away from the location of actual land use which are transmitted through the fluvial system.

Cumulative effects: Changes as a result of more than one action that may enhance or degrade a specific site.

Cumulative Impact "… the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes other such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." (NEPA, § 1508.7)

Cumulative exposures: Exposures that may last for several days to several months or exposures resulting from program activities that are repeated more than once during a year or for several consecutive years

Dams: Females.

Degraded: Broken down or destroyed.

Dermal: Pertaining to the skin.

Diameter breast height (DBH): Measurement of a tree's diameter, taken at 4.5 feet above the ground.

Dislodgeable residues: The residue of a chemical or biological agent on foliage as a result of aerial or ground spray applications, which can be removed readily from the foliage by washing, rubbing or having some other form of direct contact with the treated vegetation.

Dose-response assessment: A description of the relationship between the dose of a chemical and the incidence of occurrence or intensity of an effect. In general, this relationship is plotted by statistical methods. Separate plots are made for experimental data obtained on different species or strains within a species.

Draft Environmental Impact Statement: The statement of environmental effects required for major Federal actions under Section 102 of the National Environmental Policy Act (NEPA), and released to the public and other agencies for comment and review.

Drift: That portion of a sprayed chemical that is moved by wind off a target site.

Draw: A land feature that resembles a stream in some respects, but has a poorly defined channel and shows little or no evidence features that are characteristic of flowing water. Surface flow can occur during rainfall events of high intensity. Draws can develop into streams over geologic time if the climate becomes wetter.

EC_{50}: A concentration that causes 50% inhibition or reduction in a process.

Empirical: Refers to an observed, but not necessarily fully understood, relationship in contrast to a hypothesized or theoretical relationship.

Endocrine: The system in the body consisting of organs that generates compounds that are transported elsewhere in the body and used for regulation of some other part of the body. Examples are the thyroid, the adrenals, and the pituitary glands.

Endogenous: Growing or developing from or on the inside.

Enzymes: A biological catalyst; a protein, produced by an organism itself, that enables the splitting (as in digestion) or fusion of other chemicals.

Ephemeral stream: Strems that have a defined channel throughout much, but not necessarily all of their length. Surface flow exists only during and for a short time following precipitation events. There is little or no riparian vegetation. Non-riparian vegetation, including conifers, may be found on the streambanks and even in the streambeds. Rocks in the channel are generally not covered with green moss.

Epidemiology study: A study of a human population or human populations. In toxicology, a study that examines the relationship of exposures to one or more potentially toxic agent to adverse health effects in human populations.

Equivalent Roaded Acre (ERA) A method of categorizing the amount of soil compaction from land management activities into the common base of a compacted road surface. Roads are assigned an ERA value of 1.0; all other disturbed areas are assigned ERA values less than or equal to one.

Estrogenic: A substance that induces female hormonal activity.

Exposure assessment: The process of estimating the extent to which a population will come into contact with a chemical or biological agent.

Extrapolation: The use of a model to make estimates outside of the observable range.

Fire hazard: Probable fire behavior, based on the characteristics of fuels combined with the influences of topography and weather. The fuels characteristics apply to both dead and live fuels,

and include loading (tons per acre), size and shape, compactness, horizontal continuity, vertical arrangement, fuel moisture content, and chemical properties.

Fire regime: The recurring combination of fire occurrence, behavior, effects, and subsequent plant development that is typical of a certain vegetation type.

Fire return interval: The period of time between fires.

Fire risk: The chance (probability) that a wildfire will start, either from natural or human causes, based on recent fire history.

Forest Plan: The Land and Resource Management Plan for the Eldorado National Forest.

Formulation: A commercial preparation of a chemical including any inerts or contaminants.

Fragmentation: The process of reducing the size and continuity of patches of habitat. For purposes of this DEIS, fragmentation is used in reference to forested areas.

Fuel loading: The weight of fuel present at a given site; usually expressed in "tons per acre." This value generally refers to the fuel that would be available for consumption by fire.

Fuel Model; Fuel properties have been organized into standard fuel models for the purpose of estimating fire behavior. Four basic fuels groups (grass, brush, timber, and slash) are broken into several fuel types, which represent the 13 standard fuel models. Mathematical models provide a quantitative basis for predicting fire behavior based on fuel properties of the 13 fuel models.

Fuel profile: The amount and characteristics of live fuel and coarse woody debris in a given area. The amount is referred to as fuel loading, and the characteristics include the horizontal and vertical arrangement and continuity of fuels that affect the spread and intensity of fire.

Fuel treatment: The rearrangement or disposal of fuels to reduce fire hazard or to accomplish other resource management objectives.

Fuels complex: The structure and arrangement of forest fuels.

Gavage: The placement of a toxic agent directly into the stomach of an animal, using a gastric tube.

Geometric mean -- The measure of an average value often applied to numbers for which a log normal distribution is assumed.

Gestation: The period between conception and birth; in humans, the period known as pregnancy.

Half time or half-life: For compounds that are eliminated by first-order kinetics, the time required for the concentration of the chemical to decrease by one-half.

Hazard Quotient (HQ): The ratio of the estimated level of exposure to the RfD or some other index of acceptable exposure.

Hazard identification: The process of identifying the array of potential effects that an agent may induce in an exposed human population.

Hematological: Pertaining to the blood.

Herbaceous: A plant that does not develop persistent woody tissue above the ground (annual, biennial, or perennial, but whose aerial portion naturally dies back to the ground at the end of a growing season. They include such categories as grasses and grass-like vegetation.

Herbicide: A chemical used to control, suppress, or kill plants, or to severely interrupt their normal growth processes.

Herpetofauna: Reptiles and amphibian species as a group

Hibernaculum: The location chosen by an animal for hibernation

Historical range of variability: The distribution of the data values for an environmental indicator over a selected period of time

Histopathology: Signs of tissue damage that can be observed only by microscopic examination.

Home range: The area to which activities of an animal are confined during a defined period of time.

In vivo: Occurring in the living organism.

***In vitro*:** Isolated from the living organism and artificially maintained, as in a test tube.

Inerts: Adjuvants or additives in commercial formulations of Glyphosate that are not readily active with the other components of the mixture.

Invertebrate: An animal that does not have a spine (backbone).

Integrated Pest Management: An ecologically based process for selecting strategies to regulate forest pests to achieve resource management objectives. It is the planned and systematic use of detection, evaluation, and monitoring techniques; and all appropriate silvicultural, biological, chemical, genetic, and mechanical tactics needed to prevent or reduce pest-caused damage and losses to levels that are economically, environmentally, and aesthetically acceptable (FSH 2409.14)

Intermittent or Seasonal stream: Stream that has a well-defined channel throughout the entire length of the stream. Surface flow exists part of the year and may exist most of the year, but not year-round. There is usually some riparian vegetation adjacent to the channel. Green moss on rocks in the channel and adjacent to the channel is often an indicator that a stream is seasonal, not ephemeral.

Irritant effect: A reversible effect, compared with a corrosive effect.

Invasive Plant: An invasive non-native plant that can specified by law as being especially undesirable, troublesome, and difficult to control.

Large woody debris: Dead woody material including as boles (stems), limbs, and large root masses. Type and size of material designated as large or coarse woody debris varies among classification systems.

Lethal Concentration$_{50}$ (LC$_{50}$): A calculated concentration of a chemical in air to which exposure for a specific length of time is expected to cause death in 50% of a defined experimental animal population.

Lethal Dose$_{50}$ (LD$_{50}$): The dose of a chemical calculated to cause death in 50% of a defined experimental animal population over a specified observation period. The observation period is typically 14 days.

Limited Operating Period (LOP): A seasonal period during which normal forest management operations must be limited to reduce disturbance to wildlife species of concern.

Management Indicator Species: A plant or animal whose presence in a certain situation or location is a fairly certain sign or symptom that particular environmental conditions are also present.

Mechanical treatment: Refers to the use of machinery to remove timber or treat vegetation in an area. Mastication is an example of mechanical treatment.

Metabolite: A compound formed as a result of the metabolism or biochemical change of another compound.

Microorganisms: A generic term for all organisms consisting only of a single cell, such as bacteria, viruses, and fungi.

Minimal Risk Level (MRL): A route-specific (oral or inhalation) and duration- specific estimate of an exposure level that is not likely to be associated with adverse effects in the general population, including sensitive subgroups.

Monitoring: The collection of information over time, generally on a sample basis to measure change in an indicator or variable, for purposes of determining the effects of resource management treatments in the long-term.

Most sensitive effect: The adverse effect observed at the lowest dose level, given the available data. This is an important concept in risk assessment because, by definition, if the most sensitive effect is prevented, no other effects will develop. Thus, RfDs and other similar values are normally based on doses at which the most sensitive effect is not likely to develop.

Mutagenicity: The ability to cause genetic damage (that is damage to DNA or RNA). A mutagen is substance that causes mutations. A mutation is change in the genetic material in a body cell. Mutations can lead to birth defects, miscarriages, or cancer.

National Environmental Policy Act (NEPA): An Act passed in 1969 to declare a national policy encouraging productive and enjoyable harmony between humankind and the environment. This Act promotes efforts that prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of humanity, while enriching the understanding of ecological systems and natural resources important to the nation. The Act established the Council on Environmental Quality.

Non-target: Any plant or animal that a treatment inadvertently or unavoidably harms.

No-Observed-Adverse-Effect Level (NOAEL): The dose of a chemical at which no statistically or biologically significant increases in frequency or severity of adverse effects were observed

Precommercial thinning: Cutting in immature stands to improve the quality and growth of the remaining stand.

Prescribed burning: Management-ignited fire in which areas are burned under controlled conditions.

Protected Activity Center (PAC): This refers to areas of delineation around habitat for a specific animal. Protected activity centers are designed to minimize land disturbance within the delineated area.

Reference dose (RfD): Oral dose (mg/kg/day) not likely to be associated with adverse effects over lifetime exposure, in the general population, including sensitive subgroups.

Release: A work done to free desirable trees from competition with overstory trees, less desirable trees or grasses, and other forms of vegetative growth.

Reproductive effects: Adverse effects on the reproductive system that may result from exposure to a chemical or biological agent. The toxicity of the agents may be directed to the reproductive organs or the related endocrine system. The manifestations of these effects may be noted as alterations in sexual behavior, fertility, pregnancy outcomes, or modifications in other functions dependent on the integrity of this system.

RfD: A daily dose that is not anticipated to cause any adverse effects in a human population over a lifetime of exposure. The U.S. EPA derives these values.

Resistance to Control: A measure of the production rate of a resource to construct and hold a fire line. Several factors affect resistance to fire control such as: the type of fuel, the volume of fuel to construct line through, the fire intensity adjacent to the line, steepness of slope, etc.

Riparian Conservation Area (RCA): A land allocation as designated by the SNFPA surrounding an aquatic feature. RCAs are 300 feet on each side of perennial streams and surrounding special aquatic features. The RCA on each side of seasonally flowing streams is 150 feet.

Route of exposure: The way in which a chemical or biological agent enters the body. Most typical routes include oral (eating or drinking), dermal (contact of the agent with the skin), and inhalation.

Scientific notation: The method of expressing quantities as the product of number between 1 and 10 multiplied by 10 raised to some power. For example, in scientific notation, 1 kg = 1,000 g would be expressed as 1 kg = 1×10^3 g and 1 mg = 0.001 would be expressed as 1 mg = 1×10^{-3}.

Sedimentation: The process of sediment deposition, usually resulting from erosion.

Sensitive subgroup: Subpopulations that are much more sensitive than the general public to certain agents in the environment.

Sensitization: A condition in which one is or becomes hypersensitive or reactive to an agent through repeated exposure.

Site preparation: The removal of competition and conditioning of the soil to enhance the survival and growth of seedlings or to enhance the seed germination.

Soil Quality Standards (SQS): Threshold values that indicate when changes in soil properties and soil conditions would result in significant change or impairment of productivity potential, hydrologic function, or buffering capacity of the soil. Detrimental soil disturbance is the resulting condition when threshold values are exceeded.

Special aquatic features: Springs, seeps, bogs, fens, wet meadows, and wet areas other than streams.

Stand: Stands are mapable areas of timber. The criteria used for recognition of a stand depend on the land management objectives. Boundaries may be defined by vegetation, soils, geography, forest uses, or ownership. Size may range from a few acres to hundreds of acres.

Stand replacing fire: A fire with high intensity to cause mortality artilty as compared to the natural range of fire sizes in the fire regime of the geographical area considered. Fires that generally exceed the typical fire size are often of high intensity and may cause profound fire effects.

Stand structure: The horizontal and vertical distribution of components of a forest stand including the height, diameter, crown layers, and stems of trees, shrubs, herbaceous understory, snags, and down woody debris.

Stocking: An indication of growing-space occupancy relative to a pre-established standard.

Strategically placed landscape area treatment (SPLAT): Area fuel treatments that treat live and dead fuels, with the objective of reducing uncharacteristically severe wildland fire effects across the landscape.

Sub-chronic exposure: An exposure duration that can last for different periods of time, but 90 days is the most common test duration. The subchronic study is usually performed in two species (rat and dog) by the route of intended use or exposure.

Surface fuels: Fuels located on the ground.

Surfactant: A specific type of additive to a pesticide formulation that is intended to reduce the surface tension of the carrier, to allow for greater efficacy of the pesticide.

Synergistic effect: A situation is which the combined effects of two chemicals is much greater than the sum of the effect of each agent given alone.

Systemic toxicity: Effects that require absorption and distribution of a toxic agent to a site distant from its entry point at which point effects are produced. Systemic effects are the obverse of local effects.

Teratogenic: Causing structural defects that affect the development of an organism; causing birth defects.

Terrestrial: Anything that lives on land as opposed to living in an aquatic environment.

Threshold: The maximum dose or concentration level of a chemical or biological agent that will not cause an effect in the organism.

Threshold of concern (TOC): The point where there a concern that cumulative watershed effects are at a high risk of occurring.

Toxicity: The inherent ability of an agent to affect living organisms adversely.

Threatened and Endangered Species (TES): A plant or animal species identified, defined, and recorded in the *Federal Registe*r, as being in danger of extinction throughout all or a significant portion of its range, in accordance with the Endangered Species Act of 1976.

Uncertainty factor (UF): A factor used in operationally deriving the RfD and similar values from experimental data. UFs are intended to account or (1) the variation in sensitivity among members of the human population; (2) the uncertainty in extrapolating animal data to the case of humans; (3) the uncertainty in extrapolating from data obtained in a study that is less than lifetime

exposure; and (4) the uncertainty in using LOAEL data rather than NOAEL data. Usually each of these factors is set equal to 10.

Underburning: Prescribed burning of the forest floor or understory vegetation for botanical or wildlife habitat objectives, hazard reduction, or silviculture objectives.

Understory: The trees and other woody species growing under the canopies of larger adjacent trees and other woody material.

Vegetation management: Activities desgined primarily to promote the health of forest vegetation for multiple-use purposes.

Vertebrate: An animal that has a spinal column (backbone).

Vertical structural diversity: Vertical structure diversity refers to the appearance of vegetation from the forest floor to the tallest plants or trees defined by a limited area. Stands or areas, which have many different heights, and thereby having much of their surface area occupied by several to many layers of vegetation, are thought to have good vertical structural diversity.

Watershed: A region or land area drained by a single stream, river, or drainage network.

Weather conditions, 90th percentile: The severest 10% of the historical fire weather, i.e., hot, dry, windy conditions occurring on mid afternoons during the fire season.

Wildland Urban Interface (WUI): is a zone between established communities and uninhabited forest lands; lands of mixed private and public ownership that experience increased human use.

Xenobiotic – A substance not naturally produced within an organism; substances foreign to an organism.

Xenoestrogen – An estrogen not naturally produced within an organism.